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(43) Date of A Publication 21.01.1998

GB 2315 090 A

The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1995

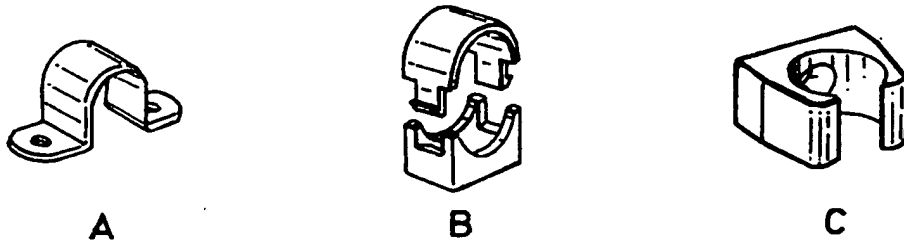


FIG. 1

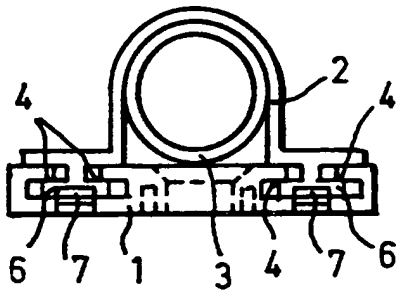


FIG. 2b

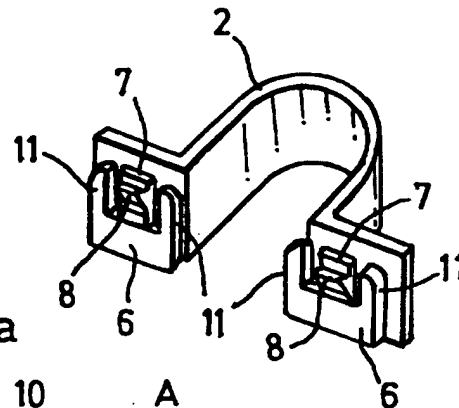


FIG. 2a

FIG. 2

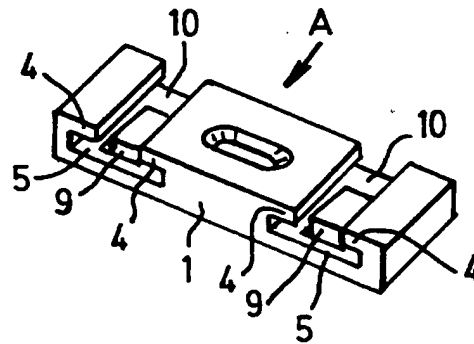


FIG. 3

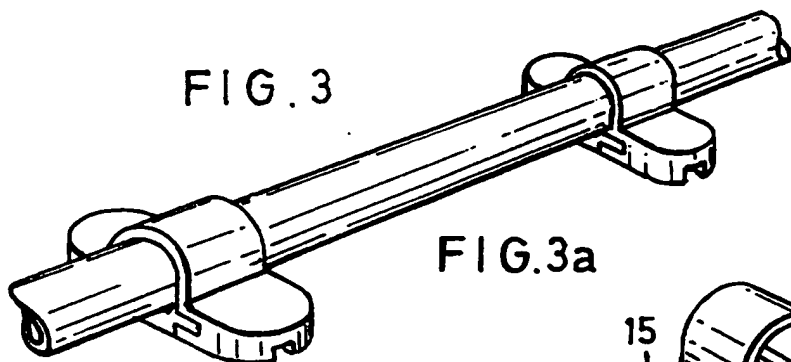


FIG. 3a

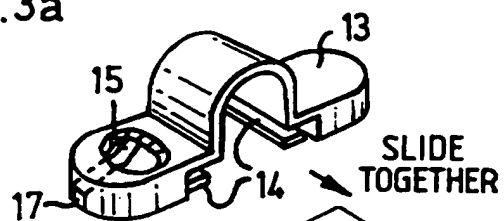
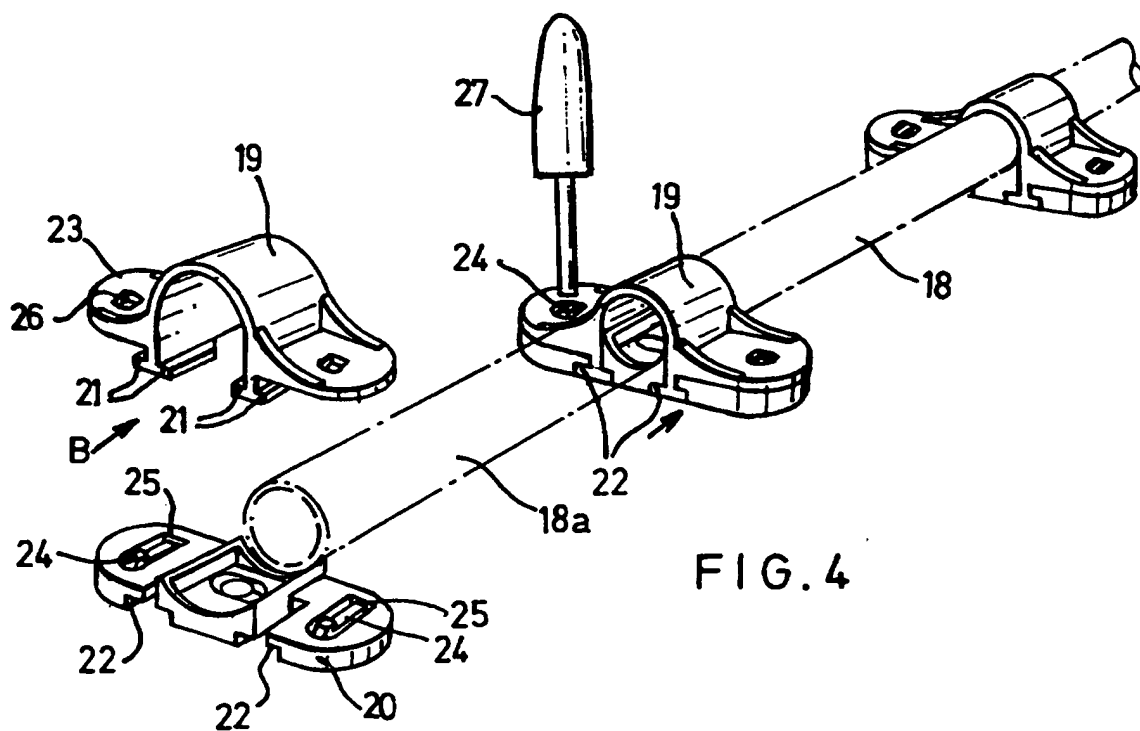
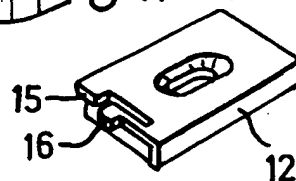


FIG. 3b



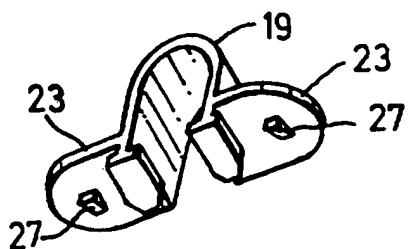


FIG. 5a

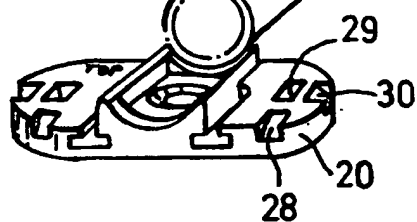
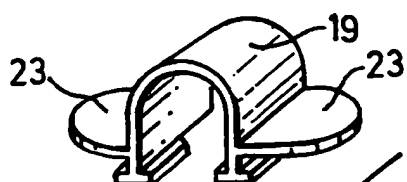


FIG. 6

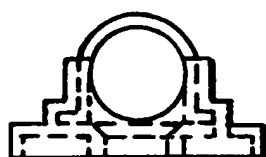


FIG. 6d

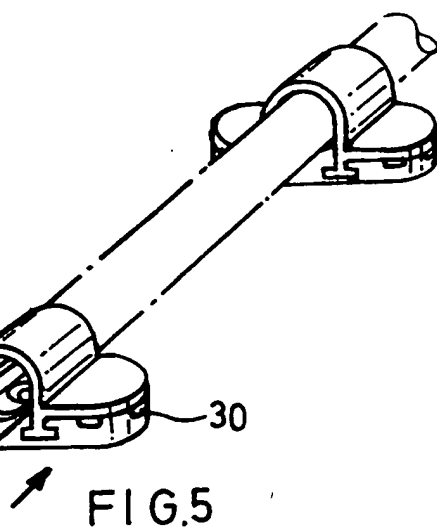


FIG. 5

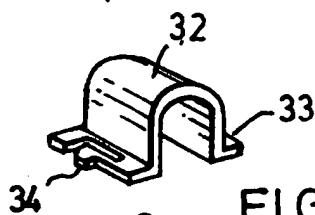


FIG. 6c

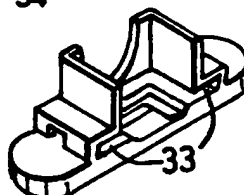


FIG. 6a

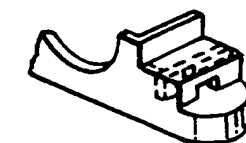
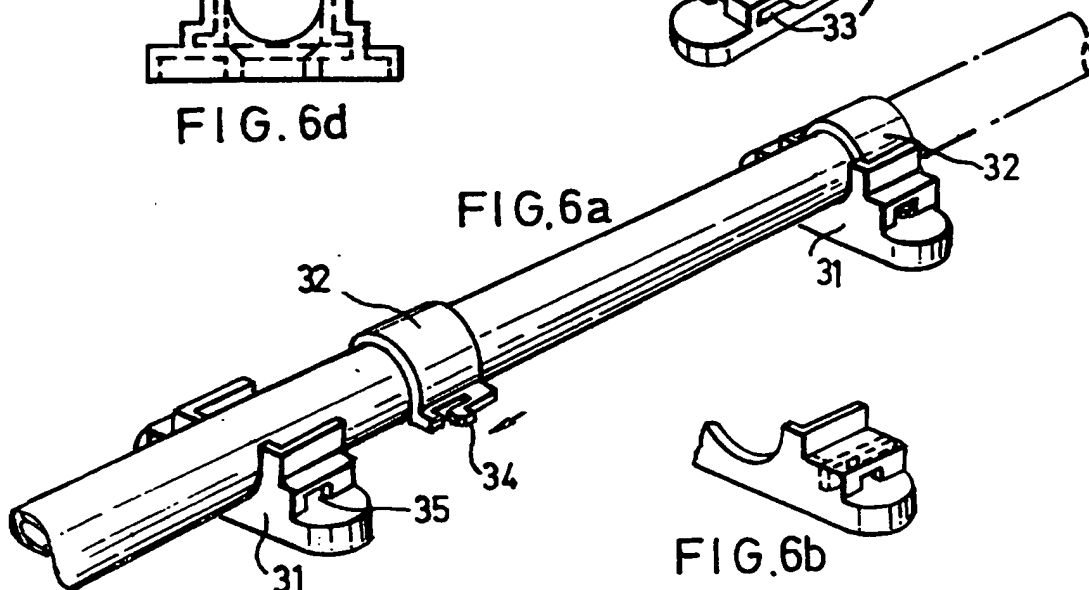


FIG. 6b

Conduit Mounting

The present invention relates to a mounting for mounting a linearly extending member such as a conduit to a surface.

Conduits of plastic or metal are widely used for containing electrical cables, signal cables, fibre optics etc. The conduits are commonly mounted to walls, ceilings and other flat surfaces and mounting members are required for mounting the conduit to such surfaces.

Typical known mountings for conduits comprise a saddle screwable to the surface or to a base which is itself fixable to the surface. The use of screws is time consuming and can provide problems where there is a danger that the screws will be lost. Saddles mountable to a surface and having resilient jaws have been provided, but they cannot hold the conduit securely enough to prevent accidental release of the conduit.

Mountings having a base and a clip which is resiliently engagable with the base have been provided. Again, there is a problem with weakness of the mounting, as the engagement between the clip and the base is not strong enough to resist loads sometimes placed on the conduit.

It is an object of the present invention to overcome these disadvantages.

Accordingly, the present invention provides a mounting for mounting a conduit to a surface, comprising a base having a face for contacting the surface and a clip releasably engagable with the base to clip therebetween the conduit, wherein the clip

and the base are held together by cooperating abutting surfaces, separation of the clip and the base in the direction parallel to the abutting surfaces being prevented by resilient detent means provided on the clip and the base.

The inventors have realised that the structures for holding the clip and the base together and the structures for preventing the base and the clip sliding apart can be separated. In this way, the first structure can be made as strong as possible whereas the second structure can be designed to prevent accidental separation of the base and clip but to be releasable at will by a suitable manipulation.

The mounting is suitable for mounting any linearly extending member to a surface, such as bars, conduits, cables etc, but it is particularly designed for a conduit.

The clip and base are engagable by relative movement parallel to the abutting surfaces. Preferably, this movement is not normal to the surface of the conduit to be held.

Preferably, the clip and the base define between them a space configured and dimensioned to snugly hold a conduit. Where the base and/or clip have flat surfaces for engaging the conduit, the direction of engagement is preferably not normal to these surfaces.

It is particularly preferred that the clip and the base should be engagable by sliding generally parallel to the surface of the conduit to be held or generally parallel to the surfaces of the clip and/or base for engaging the conduit, or generally parallel to the surface to which the conduit is to be mounted.

Preferably, the base defines a seat for the conduit, the clip preventing movement of the conduit away from this seat. Preferably, the abutting surfaces of the clip and the

base extend generally normal to the direction of movement of the conduit away from the seat.

The present invention does not require the use of screws to secure the base to the clip. Screws may be required to secure the base to the surface to which the conduit is to be mounted. Screws may be used as an auxiliary connection between the base and the clip if desired.

Preferably, the abutting surfaces or other coacting surfaces of the clip and the base are designed so that the clip and the base will be held together tightly. For example, the abutting surfaces may be configured so that the clip and the base are urged more tightly together as insertion of the clip into the base proceeds. Preferably, corresponding end portions of the abutting surfaces are planed so that they effectively wedge together and tighten the grip between the clip and the base as the base and the clip are pushed together.

Preferably, the abutting surfaces are formed on a pair of T-sectioned projections (for example on the clip) engagable with T-sectioned slots.

The resilient detent means on the clip and the base may be any suitable means. For example, there may be a resiliently mounted tooth engagable in a slot or behind a projection. Preferably, the resilient detent means comprises a resiliently movable detent part which is movable in a direction having a substantial component normal to the direction parallel to the abutting surfaces.

For example, the base could comprise two upstanding walls, the clip being engagable in or around these walls and detent means being provided between the clip and at least one of these walls.

Alternatively, the base could comprise base parts for extending flat against the surface to which the conduit is to be mounted, the abutting surfaces being formed in the

base parts and the detent means being formed in the base part and in parts of the clip for engagement therewith

The detent means may be designed so that they can be released by a sufficiently strong force in the direction parallel to the abutting surfaces. To this end, the detent means may comprise camming surfaces which will resist relative movement under normal loads but which will cam over one another under sufficient load.

Alternatively, means may be provided operable by the user to disengage the detent means. For example, the detent means may be positioned so that they are engagable by a tool such as a screwdriver to disengage the detent surfaces. For example, an operating slot may be provided in one of the clip and/or base to allow the tool to be engage the detent surfaces.

Preferably, one or both of the clip and base are formed of plastics material, such as UPVC.

The present invention will be further described by way of example only with reference to the accompanying drawings, in which:

Figure 1 shows three prior art conduit mounting means.

Figures 2a-2b, 3a-3b, 4, 5, 5a, 6, 6a-6d show first, second, third, fourth and fifth embodiments of the invention.

Figure 1 shows various prior art conduit mountings. Mounting A comprises a saddle which can be fitted over the conduit and screwed directly to the surface to which the conduit is to be mounted. It requires the use of screws.

Mounting B comprises a base and a clip resiliently fixable to the base. Resilient tongues are provided engagable in slots in the base to fix the clip to the base. Sufficient

load on a conduit held by mounting B will cause the resilient tongues to disengage from the base.

Mounting C comprises a base screwable to the surface to which the conduit is to be mounted, with resilient tongues projecting therefrom to hold a conduit. Clearly, the conduit is relatively easily removed accidentally from mounting C.

Figure 2 shows a conduit mounting according to the present invention. The mounting comprises a base 1 which is fixable, for example by screws or adhesive to the surface to which the conduit is to be mounted. There is a clip 2 releasably engagable with the base 1 to hold a conduit 3 in position. The base 1 and clip 2 comprise abutting surfaces 4 to hold the clip and the base 1 together and to resist separation thereof.

Figure 2a shows the clip 2 and the base 1 separated.

The abutting surfaces 4 are formed in T-shaped slots 5 in the base 1 and on T-shaped projections 6 on the clip 2.

Detent means for resisting separation of the clip 2 and base 1 in a direction parallel to the abutting surfaces 4 are provided in the form of tongues 7 provided on the T-shaped projections 6 of the clip 2 having retaining barbs 8 for engagement in slots 9 formed in the base 1. The clip 2 is designed to be engaged with the base 1 in the direction of arrow A. Angled surfaces 10 are provided in the T-shaped slots 5 of the base 1. During assembly, the barbs 8 ride up the angled surfaces 10 smoothly before clipping into the slots 9.

Separation of the clip 2 from the base 1 when in assembled position may be affected by inserting a tool such as a screwdriver into the end opposite to direction A of the T-shaped slot 5. It can be seen from figure 2b that the width of the tongue 7 is less than the width of the stem of the T-shaped slot 5. Moreover, the tongue 7 is moulded to be thinner than the neighbouring parts of the T-shaped projection 6. Accordingly, it can be seen that the tongue 7 can be readily levered upwards away from the base of the T-

shaped slot 5 to allow disengagement of the barb 8 from the projection 9 and subsequent separation of the base 1 and clip 2.

The sides 11 of the T-shaped projections 6 are not quite parallel to the insertion direction. They are configured to be at 2° thereto, to ensure easy insertion.

Figure 3 shows a second embodiment of a conduit mounting according to the invention. Figure 3a shows a general view of the mounting assembled with a conduit and Figure 3b shows the component parts.

There is a base 12 for fixing to the surface to which the conduit is to be attached, for example by screws or adhesive. There is a clip 13 resiliently engagable with the base 12. Abutment surfaces for holding the parts together are shown at 14 on the clip 13 and 15 on the base 12.

The clip 13 is shown partially cut away to reveal a detent surface 16 which is formed in a space on the inside of the clip 13. This detent surface is engagable with a resilient hook part 16 integrally formed with the base 12. During assembly, the hook part 16 rides over the surface of the detent 15 and hooks behind it to prevent separation of the parts. The clip further comprises a hole 17 extending from an external surface to a position behind the detent 15. This hole allows insertion of a tool such as a screw driver from the outside of the clip to disengage the part 16 from the detent surface 15 to allow separation of the base and the clip.

Figure 4 is a schematic illustration of a third embodiment of the invention. Figure 4 shows, in perspective, a length of conduit 18 supported by the fourth embodiment of the invention on a surface. At 18a the conduit is shown in broken lines so that the mounting can be seen.

The mounting comprises a clip 19 engagable with a base 20. Abutting surfaces can be seen at 21 on the clip 19 and at 22 on the base 20.

Detent means for preventing separation of the clip 19 and base 20 are provided in wing parts 23 of the clip. The detent means comprise resiliently mounted hook parts 24. The hook parts are retained in recesses of the base 20 and are connected to the base 20 at their end 25. Detent parts of the hooks 24 project above the level of the base part 20. When the clip 19 is slid into engagement with the base 20 in direction B, the planed ends of the hooks 24 are pushed down until the hook parts are aligned with recesses 26 formed in the wings 23 of the clip. The hooks then hook into the projections 26 and prevent separation of the clip and the base. To release the clip from the base, a screw driver or similar tool 27 may be used to depress the hook 24 and to allow the clip to be disengaged.

It should be noted that in figures 2, 4 and 5 there is some resilience in the plastics material of which the clip and the base are made. Accordingly, the detent means on one side of the clip may be released first and the clip moved slightly to prevent re-engagement of the detent. Then the detent means on the other side may be disengaged to allow complete disengagement of the clip.

Figure 5 shows a fourth embodiment of the invention. Figure 5 represents a development of the design of figure 4, in which the detent means is different. In Figure 5, the locking means comprises a projection 27 formed on the wings 23 of the clip 19. This can be seen in the underside view of figure 5a. The projection 27 has a first inclined surface which allows the projection to ride up a corresponding inclined surface 28 formed on the base 20. The wings 23 of the clip 19 are sufficiently resilient to allow the projection to ride smoothly up the inclined portion 28. Movement of the clip 19 is continued until the projection 27 snaps into place in recess 29 formed in the base 20.

Separation of the clip 19 and base 20 can be achieved by inserting a tool such as a screwdriver into a space 30 formed between the base 20 and clip 19 and using the tool to lever the wing of the clip 19 upwards sufficiently for the projection 27 to exit the recess 29 to thereby allow separation of the parts.

Figure 6 shows a fifth embodiment of the invention. Figure 6a shows a perspective view of a conduit supported against the surface by mountings according to the fifth aspect of the invention. Figure 6b, c and d show details of the fifth embodiment.

The fifth embodiment provides a base 31 and a clip 32 engagable with the base. Abutment surfaces 33 are visible on the clip and the base in figure 6c. Resilient means preventing separation of the clip and the base in the direction parallel to the surfaces 33 is provided in the form of a hook part 34 resiliently mounted on the clip 32 and engagable in a slot 35 extending from the outside of the base 31 to a space defined inside the base 31 beneath surface 33.

In use, the hook 34 clips into the projection 35. The clip can be released from the base by insertion of the tool such as a screwdriver into the space 35 to push to hook 34 out of engagement with the slot and to permit sliding of the clip 32 in the direction parallel to the surfaces 33.

The present invention is described above purely by way of example and modifications can be made within the invention.

The present invention further consists in any individual features described or implicit herein or shown or implicit in the drawings or any combination of such features or any generalisation of any such features of combination.

CLAIMS:

1. A mounting for mounting a linearly extending member to a surface, comprising a base having a face for contacting the surface and a clip releaseably engagable with the base to clip therebetween the member, wherein the clip and the base are held together by co-operating abutting surfaces, separation of the clip and the base in the direction parallel to the abutting surfaces being prevented by resilient detent means provided on the clip and the base.
2. A mounting according to claim 1, wherein the abutting surfaces are formed on a pair of T-sectioned projections engagable with T-sectioned slots.
3. A mounting according to claim 2, wherein the pair of T-shaped projections are on the clip.
4. A mounting according to any preceding claim, wherein the base is provided with a flat surface for engaging the member.
5. A mounting according to any preceding claim, wherein the clip is provided with a flat surface for engaging the member.
6. A mounting according to any preceding claim, wherein the base defines a seat for the member, the clip serving to hold the member against the seat.
7. A mounting according to any preceding claim, wherein the abutting surfaces of the clip and the base extend generally normal to the direction of movement of the member away from the seat.
8. A mounting according to any preceding claim, wherein the abutting surfaces are configured so that the clip and the base are urged more tightly together as insertion of the clip into the base proceeds.

9. A mounting according to any preceding claim, wherein the corresponding end portions of the abutting surfaces are inclined so that they wedge together and tighten the grip between the clip and the base as the base and the clip are pushed together.
10. A mounting according to any preceding claim, wherein the resilient detent means on the clip is provided by a resiliently mounted tooth engagable in a slot.
11. A mounting according to any of claims 1 to 9, wherein the resilient detent means on the clip is provided by a resiliently mounted tooth engagable behind a projection.
12. A mounting according to any preceding claim, wherein the resilient detent means comprises a resiliently movable detent part movable in a direction having a substantial component normal to the direction parallel to the abutting surfaces.
13. A mounting according to any preceding claim, wherein the base comprises two upstanding walls, the clip being engagable in or around these walls and detent means being provided between the clip and at least one of these walls.
14. A mounting according to any of claims 1 to 12, wherein the base comprises base parts for extending flat against the surface to which the member is to be mounted, the abutting surfaces being formed in the base parts and the detent means being formed in the base part and in parts of the clip for engagement therewith.
15. A mounting according to any preceding claim, wherein the detent means may be released by a force in the direction parallel to the abutting surfaces.
16. A mounting according to any preceding claim, wherein the detent means comprise camming surfaces resistant to relative movement under a predetermined load

such that the detent means cam over one another under a load exceeding the predetermined load.

17. A mounting according to any preceding claim, wherein means may be provided operable by the user to disengage the detent means.

18. A mounting according to claim 17, wherein the detent means may be positioned so that they are engagable by a tool such as a screwdriver to disengage the detent surfaces.

19. A mounting according to claim 18, wherein an operating slot is provided in one of the clip and/or base to allow the tool to engage the detent surfaces.

20. A mounting according to any preceding claim, wherein screws are provided to secure the base to the surface to which the member is to be mounted.

21. A mounting according to any preceding claim, wherein screws are provided as an auxiliary connection between the base and the clip.

22. A mounting according to any preceding claim, wherein the linearly extending member is a conduit.

23. A mounting according to any preceding claim, wherein the clip is formed of a plastics material.

24. A mounting according to any preceding claim, wherein the base is formed of a plastics material.

25. A mounting as hereinbefore described with reference to any of figures 2 to 6.



Application No: GB 9614207.0
Claims searched: 1-25

Examiner: Robert H Games
Date of search: 23 July 1997

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.O): E2A (AGKFJ)

Int Cl (Ed.6): F16L 3/00, 3/10

Other:

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2276912 A (ALPLAS) see whole document especially projections 24	1,7,12 and 23
X	GB 2167799 A (EGA) see whole document	1,4-7,10-13,16-20 and 22
X	GB 1276721 (WOODHEAD) see whole document and especially projection 13 and recess 17	1,4-7, 10,12,13, 23 and 24
X	GB 1147940 (DOM HOLDINGS) see whole document especially Fig 2	1,4-7, 10,12,13, 15,16,20, 23 and 24
X	GB 1113781 (TELEFLEX) see whole document	1,6,7,11, 13,18,20 and 22-24

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
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